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VII
NEW OREGON DIPTERA

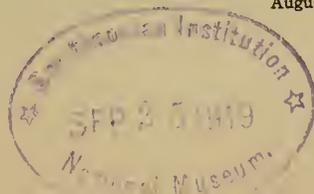
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The authors have a List of the Diptera of Oregon about completed and the following descriptions are published in order that the names of the species may be included in the List. Many other species new to science were collected in Oregon, some of which will be described by specialists in various groups. In many cases there was insufficient material on which to base a species with certainty, a large part of the collecting having been done in the past two years. We have included in this paper the descriptions of three new anthomyiids and a new chironomid for which Mr. J. R. Malloch has furnished the manuscript.

Two of the new syrphids described by Prof. Lovett were collected in the state of Washington but will no doubt be found south of its boundaries. One syrphid is redescribed.

It often happens that a species is described from one sex and if the other sex is found later by some other collector there may

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be some confusion as to its identity. The sexes are in some cases quite different and the allotype is almost as important as the type. In this paper four allotypes are described in order to establish the species more firmly. One merely adds to the confusion by describing a new species from female specimens only in such a group as the asilid genus *Cyrtopogon*, and there are many such groups in the diptera.

1. *Platyura nigra* Cole, new species

(Plate 14, fig. 1)

Male: Length 5.5 mm. Head, antennæ and palpi black; pile black; thorax and pleura black with black pile; scutellum black; abdomen entirely black with short reclinate black pile; genitalia black, with black pile; halteres black.

Coxæ black with black pile; femora and tibiæ yellowish, the tarsi blackish brown; costal region yellowish, the center of wing grayish hyaline, the posterior margin and apical fourth pale-infuscated; veins of wing brown; subcostal vein ending in costa proximad of base of radial sector; R_2+3 ending in costa distad of end of R_1 , and almost perpendicular to other radial vein. The coalesced part of the media is slightly greater than the petiole. Subcostal cross-vein absent.

Holotype (No. 463), female, collected at Forest Grove, Oregon, May 20, 1918 (F. R. Cole), in the Museum of the California Academy of Sciences.

This species will run to *melasoma* Loew in Johannsen's table of species in "Mycetophilidæ of North America." The wing differs, however, and there is no yellow color on the thorax.

2. *Dziedzickia immaculata* Cole, new species

(Plate 14, fig. 2)

Male: Length 4 mm. Head black. Antennæ blackish, the first two segments yellowish; mesonotum black with yellowish pile; humeri yellowish; scutellum black; pleura black; halteres yellow.

Abdomen blackish with pale yellowish pile; posterior margins of second, third and fourth ventral segments yellowish, the color extending up on dorsum but faintly; genitalia black with blackish pile.

Coxæ yellow, the two hind pair faintly infuscated; femora yellow; tibiæ brownish yellow, the tarsi darker; tibial spurs yellowish; wings grayish hyaline; radial veins blackish and heavier than others. Subcosta ending in the first radial vein slightly beyond middle of small cell. Petiole of cell M_1 about twice as long as R-M cross-vein. Cubitus forks shortly before the R-M cross-vein.

Holotype (No. 464), collected at Forest Grove, Oregon, May 2, 1918 (F. R. Cole), in museum of the California Academy of Sciences.

Paratype in the author's collection, taken at the same time.

This species would run to *Dziedzickia*, new species, in Johannsen's table of species. It is very probably a different form, however, as that species was from New Hampshire.

3. *Dziedzickia oregona* Cole, new species

(Plate 14, fig. 3)

Male: Length 4.5 mm. General color blackish; head black, the palpi black; antennæ blackish brown, the second joint short and yellow; thorax black, faintly gray pollinose; pile along sides of mesonotum long and yellow; three lines of pile on dorsum; some long black pile above wings and on scutellum, together with yellow pile; pleura black; halteres yellow, the knobs black.

Abdomen black with pale yellow pile; venter black; genitalia black; front coxæ yellow, the two hind pair infuscated; femora yellow, the tibiæ brownish yellow; tarsi blackish; tibial spurs bright yellow.

Wings grayish hyaline, slightly darker in the costal region; radial veins heavier and blackish; subcostal vein ending in first radial vein a little before middle of small cell, which is twice as long as wide; petiole of media about twice as long as R-M cross-vein; cubitus forked far before R-M cross-vein.

Holotype (No. 465), collected at Forest Grove, February 10, 1919 (F. R. Cole), in Museum of the California Academy of Sciences.

Paratype in author's collection, taken at the same time. Differs from *immaculata* in the longer cell R_1 and in the black knob of the halteres, etc.

4. *Stratiomyia atra* Cole, new species

(Plate 14, fig. 4)

Male: Length 12 mm. A black, rather thickly pilose species of medium size. Antennæ of normal length and black. Face black; frontal and vertical triangle black; black pile around base of antennæ; occiput reddish yellow on sides, black above and below with black pile; a yellow mark on each side of facial prominence (Pl. 14, fig. 4a) on which is some yellow pile.

Thorax black, rather thickly black pilose, the pile having a deceptive yellowish appearance in strong light; pleura and pectus black and black pilose; knobs of halteres greenish white; scutellum black, the margin broadly reddish yellow with reddish, blunt spines (Pl. 14, fig. 4b).

Abdomen black and black pilose; flat above with dorsal yellow marks narrow and confined to lateral margins much as in *S. meigenii*. The marks

on the fourth segment greatly reduced; fifth segment with a rather narrow yellow triangle (Pl. 14, fig. 4); venter black, thickly black pilose with rather narrow clay yellow posterior borders.

Femora black; tibiæ and tarsi reddish, the tibiæ darkened near middle above; pile of femora black, that on tibiæ and tarsi short and reddish; wings infuscated, the veins brown.

Holotype (No. 466), male, collected at Empire, Oregon, June 27, 1916, in Museum of the California Academy of Sciences.

Specimens from Empire and South Inlet, Coos County, June 27, 1916. (Miss Rhodes, collector.) Several specimens were bred from barnyard manure. Some of the pupæ are in vials of alcohol in the Corvallis Agricultural College Collection.

This species is very near *barbata* Lw. but the yellow abdominal markings are very much smaller, wings more deeply infuscated, occiput black above, etc.

5. *Eclimus celer* Cole, new species

Male: Length 12 mm. Body entirely black; face shining black with black pile; pile of occiput white, that beneath head black; third antennal joint narrow, slightly longer than first; the first two joints black pilose; proboscis scarcely twice the length of the head; palpi slender, shorter than the antennæ.

Thorax and scutellum shining black; dorsum of thorax muricate and covered with short, rather curly white pile which gives the thorax a marked gray appearance to the naked eye; pleura shining, sparsely black pilose; knob of halteres black, the stem paler.

Abdomen dull black, with peculiar little dents on the dorsum; a pair on each side and a widely separated pair anterior to these, one on each side; these little line-like impressions absent on the first and last segments; the pile on the first five segments white, on the last segments black; venter with black pile. On the posterior margins of the first five segments there is a fringe of more reclinate white pile.

Legs black, the anterior four femora with sparse black pile below; hind femora with four small bristles below on the outer half; wings infuscated, blackish along the costal margin, the anal cell paler, the axillary cell almost hyaline; wing very similar to that of *E. magnus*, the darkened indentation above the anterior cross-vein being present; wing glossy and shining as in *E. magnus*.

Holotype (No. 467), male, collected at Parkdale, Ore., June 18, 1917 (F. R. Cole), in the Museum of the California Academy of Sciences.

Paratype in the author's collection, taken at the same time. The head of this species is very similar to that of *E. magnus* (Fig. 5a).

6. *Eclimus magnus* O. S.

(Plate 14, figs. 5, 5a)

Male: Length 15 mm. Very similar to the female. Pile of the occiput black, as is the pile on antennæ and beneath the head.

Thorax black and muricate; the pile on dorsum and on pleura black; scutellum with longer black pile on surface.

Abdomen rather long and slender and clothed with short black pile; posterior margin of the first segment with a conspicuous fringe of white pile; a very narrow fringe on segments two, three, four and five; rest of abdomen, including genitalia, black pilose.

The black pile on the coxæ is longer and thicker than on the femora. The wings are as in the female, except for the strong denticulations on the costa (Fig. 5). Above the anterior cross-vein the membrane appears to be bent inward; this hollow is darkened.

Allotype (No. 468), male, collected at Joseph, Oregon, in Museum of the California Academy of Sciences.

The female was described by Osten Sacken in "Western Diptera," from a specimen taken on Vancouver Island.

There are five males in the author's collection, taken at Forest Grove, from June 3 to June 18, 1918. One is only 8 mm. in length. A female was taken at Parkdale, Ore., June 18, 1917 (Cole).

7. *Bombylius silvus* Cole, new species

(Plate 14, fig. 6)

Female: Length 8.5 mm. Frons and occiput gray black, face obscure brown; mystax thin and mixed black and yellowish; antennæ black, the first two joints with black pile and together scarcely more than one-half as long as third; a black stripe from antenna to eye (Fig. 6); frons with sparse golden tomentum; occiput with yellow tomentum and an unusual fringe of black bristly pile on the line of the ocellar bristles, present in some other diptera; head below with white pile; proboscis a little more than three times the length of the head.

Thorax and scutellum black, semi-shining, with a metallic blue lustre, and clothed rather densely with a fur-like blackish brown pile which in certain lights appears yellowish; thorax and scutellum with some golden tomentum above; the gray black pleura obscured by white pile; some brown pile under the wing; stem of halteres brown, the knob whitish.

Abdomen black with black pile most of which is longer and more bristly than that on the thorax; sides of second, third and fourth segments with finer brownish black pile; a median dorsal line of white tomentose spots on segments two to six, quite noticeable on the dark background; on each side of these spots there is some short yellowish pile; last abdominal segment with some yellow tomentum above; venter black, clothed mostly with white pile.

Femora and tibiæ reddish, with whitish tomentum; tarsi blackish, knees black; wings gray, the costal region darker from base to tip of costal cell, this darker region with a brownish tinge. Wings rather long and narrow.

A single female specimen collected at Parkdale June 18, 1917, by the author, at an altitude of about 3500 feet in a pine forest.

We know of no species which could be easily confused with this one; it appears to be quite distinct. It is nearer to *B. lancifer* than to any other species.

Holotype (No. 518), female, in Museum of the California Academy of Sciences.

8. *Bombylius aurifer pendens* Cole, new subspecies

(Plate 14, fig. 7)

Male: Length 5 to 8 mm. Body black, covered with long dense pile which varies from golden yellow to a silvery white; face and frontal triangle gray; epistoma with long white pile reaching down over the oral margin; frontal triangle with short appressed white pile; beard and pile of occiput white; antennæ black, third joint about twice the length of the first two (Fig. 7); proboscis about $2\frac{1}{2}$ times the length of the head.

Thorax deep black with sparse yellow tomentum; pile of anterior part a silvery white, on the sides golden yellow; scutellum with long golden yellow pile and sparse yellow tomentum; pleura gray with white pile; halteres yellow.

Abdomen gray-black with long yellow pile, darker near the base; a small tuft of black pile on the anterior lateral margins of the third and fourth segments.

Middle and front femora black with fine hairs below, the hind pair black at base with a double row of spines below and a number above on the outer third; tibiæ reddish, the tarsi darker, blackish toward the tip; femora and tibiæ thickly covered with whitish scales; proximal part of wings reddish brown, the color reaching a little beyond the tip of the first vein and the anterior cross-vein; the remainder of the wing gray hyaline.

Female: Very nearly like male. Pile paler and the occiput densely clothed with white tomentum; third antennal joint slightly thicker. Some black pile above on mystax; frons covered with shining yellow tomentum and with some erect yellow pile; pile of occiput more yellowish; brown of proximal part of wings paler and not defined as in the ♂. There is some variation in the pile and coloring.

Holotype (No. 469), male, and allotype (No. 470), female, in Museum of California Academy of Sciences, collected at Hood River, Oregon, June 18, 1917 (F. R. Cole).

Described from 6 ♂♂ and 3 ♀♀ collected by the senior author in June at Parkdale, Dee and Hood River, all in the Hood River Valley, Oregon.

9. *Anthrax macula* Cole, new species

(Plate 15, fig. 8)

Frons black semi-shining, with a dent in the center; face reddish with silvery tomentum and white pile; occiput black; frons with yellow and

silvery tomentum; occiput with silvery tomentum; oral margin narrowly black; basal joints of antennæ red with black pile, the third joint black and evenly pointed.

Thorax shining brownish-black with white and some yellow tomentum; yellow pile in front and white on sides and on scutellum; scutellum except base brownish red; spines whitish; pile of pleura and pectus white; halteres brown with a yellow knob.

Abdomen black with black and white tomentum; white pile on sides of first and second segments; reddish spot on sides of second segment; black pile on lateral margins of third segment, posterior margin of second, lateral margin of fourth and fifth and most of sixth; base of third and fourth segments with band of white tomentum broadly interrupted in the middle, the second segment with a narrower cross-band; all of the segments with black tomentum; some tomentum on fifth and sixth segments appearing brassy yellow in certain lights; seventh segment thickly covered with white tomentum and with long black pile; venter black with white tomentum, posterior margins of segments narrowly reddish.

Legs with femora above, apex of tibiæ and the tarsi blackish; tomentum of legs silvery white, the spines black; front claws minute, the tibiæ without spines; wings hyaline and blackish brown, the color not quite reaching end of first vein and running from there in a jagged line back to apex of the anal cell; hyaline spots on cross-veins and elsewhere as shown in Fig. 8. This species runs in Coquillet's table to *fenestratooides* Coq. and is close to that species.

Holotype, male (No. 519), and allotype, female (No. 520), Dallas, Ore., July (Moznette, coll.), in the Museum of the California Academy of Sciences. Paratypes in author's collection, from Hemiston, Ore., Sept. 14, 1918 (Reeher, coll.).

10. *Spogostylum argentatum* Cole, new species

(Plate 15, fig. 9)

Male: Face, frons and occiput dull black with a grayish tinge, clothed with short black pile; the antennæ black with a short styliform portion (Fig. 9a).

Thorax dull gray-black with black pile and tomentum; pleura of like color and black pilose; halteres brown, the tips paler or whitish; squamæ whitish with a white fringe; scutellum blackish gray with black tomentum and pile.

Abdomen black, semi-shining, with black pile and tomentum; sides of first segment with white pile, which runs up on dorsum for some distance, and a spot of silvery tomentum at the incisure; second and third segments with a corresponding silvery spot and an additional pair each side of median line with perhaps a few scales between; last two abdominal segments of male, except a median stripe, clothed with appressed silvery scales which are smooth and catch the light like burnished silver.

Legs black with fine short black bristles; coxæ with some whitish tomentum; basal half of wing opaque brownish black, the color reaching to the end of costal cell and from there in a jagged line through the end of the anal and axillary cells (Fig. 9).

Female: Resembles the male. Frons broader; lacking the silvery tip to the abdomen; anterior lateral margin of last segment with a few silvery scales; tip of abdomen with fringe of dense pale brown pile which curves inward around the ovipositor.

Holotype (No. 471), male, and allotype (No. 472), female, collected at Hood River, Oregon, July 5, 1917, and June 20, 1917 (F. R. Cole), in the Museum of the California Academy of Sciences.

Paratypes in the author's collection, from Hood River.

11. *Leptomidas pantherinus* Gerst.

(Plate 15, fig. 10)

The male of this species has never been described. Osten Sacken described the female in "Western Diptera" and a number of specimens taken at Hood River seem to agree very well with the description. The species is variable in color and extent of the markings.

Male: Length 11 mm. Head black. Frons excavated, sides of frons, occiput, face and cheeks with bushy bright yellow pile. Antennæ varied in color, in some specimens almost all black, usually first two joints reddish. First joint about twice the length of the second, the third more than three times the length of the first two; terminal club about equal to rest of antennæ and coarctate on first third of its length; proboscis brown.

Thorax jet black, shining on sides and in front of scutellum; scutellum very small and shining black; a fan-shaped tuft of yellow pile on sides of thorax; two longitudinal stripes of short yellow pile on dorsum, a yellow tuft in front of scutellum and on each side (Fig. 10); pleura shining black; a yellow tuft of pile beneath wings and on each side of halteres; halteres black.

Abdomen yellow with anterior margin of segments black; the markings vary somewhat, lateral margin black in varying degrees; pile of abdomen short and sparse, longer on first segment; some short black pile on the black abdominal markings; genitalia reddish yellow.

Legs yellow with short yellow spines and pile; hind femora broadly blackish above almost to apex; middle and front coxæ mostly yellow, the hind ones black; four strong spines beneath apical half of hind femora; wings mostly hyaline, yellowish along veins and anterior margin; veins yellowish; venation normal (Fig. 10); twelve specimens collected at Hood River, Ore., July 7, 1917 (F. R. Cole).

Female: Basal joints of antennæ with yellow pile; facial callosity yellowish; thorax reddish in ground color, an indistinct black mark on each side on dorsum, and one in front of scutellum; upper pleura, humeral calli and margin of scutellum yellow; prothorax yellowish; venter yellow, the base of segments 2, 3 and 4 narrowly black; first segment of abdomen with a yellow spot on the posterior lateral margin. Length 21.5 mm.

Osten Sacken's description in "Western Diptera," translated from the original, is a very good one.

Allotype (No. 473), male, in Museum of the California Academy of Sciences.

12. *Leptogaster aridus* Cole, new species

Male: Length 9 mm. Face and mystax white; frons and occiput gray pollinose; bristles of upper occiput black, below with sparse white hairs; proboscis black; first antennal joint black, second yellowish, third brown with an arista longer than the joint itself.

Thorax gray pollinose, the ground color black; two rather obscure brownish dorsal lines, and a brown spot on either side; humeri yellow, bristles of thorax black; scutellum black, gray pollinose; the pre-scutellar callosities yellowish; stem of halteres pale yellow, knob blackish.

Ground color of abdomen dark brown; abdomen very slender, second segment longest; the second, third and fourth segments cylindrical; posterior margins of second to fifth yellow; legs yellow; the swollen part of the hind femora, distal half of hind tibiae and last four joints of tarsi brown; hind tarsi much darker than others; claws black; empodia present; wings hyaline, the anal and posterior cells all wide open. Wings reach to middle of fifth segment of abdomen.

Female: Similar to male. Marks on dorsum of thorax more distinct; the two median stripes not reaching the scutellum; abdomen darker, a little heavier, the yellow posterior margins obscured by gray pollen; small, distinct black dots near the anterior margin of the abdominal segments; no yellow on fifth segment.

Holotype (No. 474), male, from Hood River, Ore., July, 1917 (L. Childs), and allotype (No. 475), female, from Forest Grove, Oregon, July 12, 1918 (F. R. Cole), in the Museum of the California Academy of Sciences.

Paratypes in the author's collection, taken at Forest Grove in July.

This species would run to *flavipes* in Back's table of species, in his Monograph. The bristles of the occiput are black, however, only the second antennal joint is yellow and the abdomen is marked differently.

13. *Lasiopogon cinereus* Cole, new species

(Plate 15, fig. 11)

Male: Length 8 mm. Head black, gray pollinose, except a faint yellowish tinge on upper occiput; mystax, and hairs of frons, antennae and upper occiput black; a few white hairs on side of mouth opening; pile of lower occiput and proboscis white; antennae black, the third joint slightly longer than first two; pointed style about as long as first joint.

Thorax black, gray pollinose, with a faint yellowish, narrow median stripe and a heavy brown stripe on either side, diverging anteriorly and expanded at the end; scutellum with black upcurved hairs; pile and bristles of thoracic dorsum black; bristles in front of wings and halteres black; pile of pleura white; halteres yellowish, the knob brown.

Abdomen black, densely gray-pollinose, except on the genitalia; a large blackish brown, semi-shining spot on base of each segment, leaving only the lateral and posterior margins gray-pollinose; these spots rounded posteriorly; first four segments with rather long white pile; the pile of the other segments black and shorter, that on the genitalia black and heavier; a conspicuous tuft of black hair on the dorsum of the genitalia just behind the seventh segment (Fig. 11a).

Legs black, gray-pollinose, with black bristles; coxæ and femora with white pile; wings very faintly infuscated; anterior cross-vein slightly before the middle of the discal cell.

Female: Very similar to the male. There is a faint brown line above the dorso-pleural suture and some black pile on the posterior margin of the second, third and fourth abdominal segments; eighth segment black with some red on the genitalia; the circlet of blunt bristles black. Genitalia peculiar in shape (Fig. 11b).

Holotype (No. 476), male, collected at Hood River, Ore., Sept. 24, 1918 (F. R. Cole), and allotype (No. 477), female, taken at Hood River, Oregon, July 28, 1917 (F. R. Cole), in the Museum of the California Academy of Sciences.

Paratypes from Corvallis and Parkdale, Oregon, in the author's collection.

This species is very near *opaculus* but differs in having distinct thoracic stripes and also in the abdominal markings.

14. *Dioctria vertebrata* Cole, new species

(Plate 16, fig. 12)

Female: Length 5.5 mm. Head, antennæ, proboscis and palpi black; pile of antennæ brown; face densely pollinose, golden above, silvery below; mystax consisting of a few whitish hairs; occiput and frons shining black; antennal protuberance prominent; antennæ quite long as in some of the European species; third joint flattened.

Thorax and pleura shining black; the metanotum, a line from root of wing to humeral callosity, and dividing line between meso- and pteropleura silvery pollinose; scutellum black with short golden pile; two lines of thin golden pile on dorsum of thorax; halteres yellow.

Abdomen black and yellow banded, almost bare; first segment black, second black at base and on posterior margin; third and fourth yellow with a broad black band across the middle; fifth, sixth and seventh black with narrow yellow posterior margins; venter yellowish.

Legs including coxæ yellow, with yellow bristles and pile; coxæ silvery-pollinose; claws except base, black; last tarsal joint brown; wings rather long and slender as shown in figure; veins black; membrane hyaline; costal margin with fine, short pile.

Holotype (No. 478), female, collected at Parkdale, Ore., July 12, 1917 (Cole), in the Museum of the California Academy of Sciences.

This species is nearest *rubida* Coq., but differs in having yellow coxæ and tarsi, hyaline wings, etc.

15. *Cyrtopogon auratus* Cole, new species

(Plate 16, fig. 13)

Male: Length 11 mm. Black; face gray-pollinose, the frons yellowish gray; oral margin with black hairs, the mystax above it thick and golden

yellow; beard and pile of lower occiput white; upper occiput and frons with black pile, long on the frons; third antennal joint orange-yellow, the style black and about one-fourth as long as the third joint; first two antennal segments with black pile.

Thorax gray-pollinose with a median geminate stripe; a round black spot on each side at about the middle; a spot over the humeri that shows dark in certain lights; scutellum rounded and polished black, with long black pile; thorax quite thickly covered with black pile about as long as the first two antennal joints; pleura, front coxæ and the outside of the two hind pair thickly gray-white pollinose; pile in front of halteres mostly black; halteres yellow; pre-scutellar callosities and a small space before the scutellum shining black.

Abdomen shining black with tufts of golden pile on the segments (Fig. 13); second, third and fourth segments with posterior silvery pollinose bands, wider in the middle; the silvery posterior margin wider on the second segment, and the golden pile on the dorsum shorter than on third and fourth; fifth and sixth segments short, polished blue-black as are the genitalia, with short black pile; venter black, thinly covered with rather long golden pile.

Femora black; front tibiæ and tarsi yellow, paler than others, with a few white spines; legs with black bristles, very dense on the hind tibiæ. Front tibiæ and tarsi short golden pilose behind. Wings grayish hyaline, the cross veins faintly infuscated.

Holotype (No. 479), male, Joseph, Ore., no other data, in Museum of California Academy of Sciences.

This species is near *aurifex* and *pulcher* and the male will run to this group in Back's table of species (Trans. Am. Ent. Soc. xxxv, p. 261).

16. *Cyrtopogon anomalus* Cole, new species

(Plate 16, fig. 14)

Male: Length 11 mm. Head black in ground color, concealed by dense gray pollen, silvery in certain lights. Face not projecting (Fig. 14c); antennæ black; third joint pointed, arista two-jointed; hair and bristles of head white; some blackish hairs on oral margin; pile of face very thick and quite long.

Thorax black, the ground color concealed by pollen; dorsum with brown pollen above, gray around margins; a median dark double stripe reaching beyond suture; dark indistinct marks on each side; dorsum with mixed brown and black pile and bristles, whitish posteriorly; scutellum gray-pollinose with long white bristles, mostly on border; hair on dorsum; all the pile of pleura white; knob of halteres yellow, the stem blackish; pleura silvery gray-pollinose.

Abdomen very broad for this genus, narrowed somewhat at the base and apex; gray-pollinose; dorsum of abdomen largely shining black; a basal mark on all segments, reaching nearly to lateral margin on segments 4, 5 and 6, and leaving only a narrow posterior margin of pollen on 4 and 5; genitalia black, shining; pile on first three abdominal segments white, on remaining segments, and genitalia golden yellow; venter gray pollinose; white pile on basal half, golden on apical half.

Femora black except extreme base, which is yellow. Base of front tibiæ and basal half of two hind pair yellow; tarsi blackish except base; bristles

of legs reddish; femora white pilose, which is long below; four anterior tibiae with white pile and long white hairs; all tarsi, front tibiae and apex of hind tibiae with short golden pile; wings gray-hyaline with black veins.

Female: Length 12 mm. Pile of face and frons sparse and shorter; ocellar bristles brown; pollen of thoracic dorsum more golden brown; two median dorsal gray lines; a bare brown spot near humeri, more noticeable than in male; abdomen much longer and more slender; pile much shorter and entirely white; segments beyond fifth shining black; a narrow brown posterior margin to sixth and seventh segments; a circlet of stub-like spines at tip of ovipositor.

Holotype (No. 480), male, and allotype (No. 481), female, collected at Hood River, Ore., June 13, 1917 (F. R. Cole), in Museum of California Academy of Sciences.

Paratypes in the author's collection taken at Forest Grove in July and August. This species is near the genus *Heteropogon* in general appearance. All specimens were taken near water, those at Forest Grove alighting on drift wood and sticks along a small creek.

17. *Cyrtopogon nebulo* O. S.

(Plate 16, fig. 15)

The male of this species has never been described and some of the characters are given below.

Male: Differs in a few respects from the female. Besides the spines, some of the hairs are brown at the base and white at the tips, as they are in the female; pile of the abdomen longer, white on the first, second, and base of third segment; rest of abdominal pile brownish black with white tips in certain lights; short golden pile on apical half of front and hind tibiae and inner side of front and hind tarsi, a character some other species have. The genitalia are not of the typical form in this genus, quite densely covered with brown and black bristly hairs and pile.

Wings infuscated but there are several hyaline spots and streaks in addition to the brown clouds; costa armed with short, thickly set, curved bristles or hairs; this costal fringe very noticeable, that part on the basal two-thirds of the wing being about as long as the second antennal joint.

Allotype (No. 482), male, in the Museum of the California Academy of Sciences, obtained in the subalpine regions on Mt. Jefferson, July 25, 1909 (J. C. Bridwell).

A female collected at Horse Lake, July 25, 1909 (J. C. Bridwell), has the antennal style a trifle shorter than the third segment. The second vein in one wing has an adventitious anterior branch near the tip and a stump of a vein just before it. Inner side of the hind tibiae and tarsi with short golden pile. The margin of scutellum golden pollinose.

This species is better placed in *Cyrtopogon*, with which it has several characters in common, but it might well be made the type of a new genus. Osten Sacken noticed that the female was not typical and the male has characters that separate it more definitely. The fringe on the costa of the wing is not found on any of the other species of *Cyrtopogon* known to us, and the antennæ are more like those of *Heteropogon*.

18. *Cyrtopogon infuscatus* Cole, new species

(Plate 17, fig. 16)

Male: Length 10 mm. Head, antennæ, proboscis and palpi black; head silvery gray-pollinose; frons with long erect black pile; facial callosity very large, bulging from oral margin to base of antennæ; clothed with long white pile; pile of occiput mostly white, that on lower corners of face and lower occiput black.

Thorax and scutellum black, thickly gray-pollinose; some black pile in front of wings; pile of pleura white, including metapleural tuft; dorsum with sparse black pile and black bristles; scutellum with long fine black bristles, hair-like and up-curving; halteres with black stem and yellow knob.

Abdomen blue-black with white pile, much longer on sides of first three segments; sides of first segment and posterior lateral margins of second to fifth white pollinose; sixth and seventh pollinose except a dorsal triangle; genitalia black, gray-pollinose and short black pilose.

Legs entirely black; femora and tibiæ with rather long white pile and black bristles; short golden pile beneath tarsi, on tips of hind tibiæ and on all but base of front tibiæ; a large part of the wing infuscated (Fig. 16a).

Holotype (No. 483), male, collected at Pamelia Lake on Mt. Jefferson, altitude 3,000 feet, July 12, 1907 (J. C. Bridwell), in the Museum of the California Academy of Sciences.

This species is very near *evidens* and *rejectus*, differing from the former in the white pile of the face and in the extent of the pollinose crossbands on the abdomen. It may prove to be the male of *rejectus* O. S.

19. *Cyrtopogon perspicax* Cole, new species

Male: Length 10 mm. Black, thickly pilose species; third antennal joint red; scutellum convex and shining.

Head black, thinly grayish yellow pollinose; mystax thick and black, the pile reaching to base of antennæ; pile in middle of frons whitish, that of upper occiput black; first two antennal joints black, the second yellow at tip, third reddish yellow except extreme apex; style about one-third length of third joint; beard and pile on proboscis white.

Thorax black, brown pollinose, lighter in some places than others and forming a peculiar cross-shaped design on the dorsum, outlined behind by whitish pollen; scutellum and pre-scutellar callosities shining black, the

scutellar pile long and up-curved; thorax with long, black erect pile; pleura light brownish pollinose, the three long tufts of black pile curled at the tip; halteres brown with a yellowish knob.

Abdomen shining black, almost bare of pile above; long black pile on the sides of the abdomen arranged in tufts; pile of venter long and black; the white pollinose fasciæ on the posterior margins of the second, third, fourth and fifth segments widely interrupted in the middle; genitalia much larger than the last segment, black, with black pile.

Femora and knees black; coxæ and basal half of femora beneath long golden yellow pilose; tibiæ and tarsi brownish red, the last tarsal segment and most of the preceding one black; pulvilli white, the claws black; pile of apical half of femora, pile and spines of tibiæ and tarsi black; tarsi not ornamented except for short silvery pile beneath on hind pair; front tarsi much longer than the others, the first two joints as long as the entire middle tarsi. Wings grayish hyaline; a narrow brown cloud runs from end of first vein along base of third to anterior cross-vein and along cross-veins closing discal, fourth and fifth posterior cells; a pale cloud on veins at distal end of discal cell; anterior cross-vein a little distad of end of first vein, near base of discal cell.

Female: Very similar to male. There is some white pile on face beneath antennæ and some, mixed with black pile, on femora; front tarsi much shorter and heavier than in male, about same length as others; no silvery pile beneath on hind tarsi; pile of the hind tibiæ white above and black below; some white pile above on middle tibiæ; the interrupted pollinose fasciæ much wider and with white pile on them; rest of pile on abdomen black, except at posterior angles of first segment, and much shorter and thinner than in male, decreasing in length toward the tip.

Holotype (No. 484), male, collected at Hood River, Oregon, May 15, 1917 (F. R. Cole), and allotype (No. 485), female, taken by the senior author at the same place May 29, 1917, in the Museum of the California Academy of Sciences.

Paratypes in the author's collection, taken at Hood River, Oregon, in June.

This species is in the group having the third antennal joint red and with a convex, shining scutellum. It would run to *aurifex* in Back's table of species, given in his Monograph, but has no fulvous hair on the abdomen; the tibiæ are all red, etc.

20. *Cyrtopogon princeps* O. S.

The holotype is a single male from Webber Lake, Sierra Nevada Mts., California. Back, in his Monograph, mentions no other specimens. The description of the female is therefore given.

Female: Length about 12.5 mm. The frons and face with gray bloom, the pile as in male; thorax mostly brownish, the markings not distinct but outlined posteriorly with whitish bloom.

Abdomen polished black but the pollinose cross-bands differ. Segments two to five with the usual posterior cross-bands of gray-white pollen. Scarcely any pile on abdomen except on the basal two segments.

Legs all black; front tarsi normal in length and with short black pile; hind tibiæ with the silvery white pile as in male, but no such pile on the tarsi; claws and pulvilli as in male.

Allotype (No. 486), female, collected at Mackenzie Ridge, Ore., altitude 6,000 feet, August 1, 1909, in the Museum of the California Academy of Sciences.

There are several males from the sub-alpine region on Mt. Jefferson, collected by J. C. Bridwell, and now in the Oregon Agricultural College Collection. One female from Horse Lake, altitude 6,000 feet, July 25, 1909.

21. *Metapogon setigerum* Cole, new species

(Plate 17, fig. 17)

Male: Length 8.5 mm. Black, largely covered with gray and silvery pollen; base of wings white, the apical half brown; face and frons gray pollinose with a peculiar olive tinge, especially on the frons; four strong ocellar bristles. A few weak small bristles in center of frons, stronger along sides; face with numerous strong black bristles in place of the usual pile, reaching from oral margin almost to base of antennæ; antennæ black, the second joint slightly larger than first, the third a little longer than the first two taken together; one bristle beneath second antennal joint, two strong bristles beneath first; bristles of upper occiput strong, and black, the pile of occiput and beard white; occiput gray-pollinose, yellowish above.

Thorax and pleura almost entirely pruinose, with a yellowish tinge in places; median geminate stripe gray, more or less well defined; inside of the humeri, on each side of the median stripe, is a faint brown spot; four strong dorsocentrals, two small humerals, and three bristles above the pleural suture in a triangle; most of the metapleural tuft black; scutellum pruinose above with two strong apical bristles; knob of halteres yellow, the base pale brown; dorsum of thorax destitute of pile; with only a few scattered minute bristles; in front of the scutellum is a spot appearing black in certain lights; spines and pile on coxæ whitish; sternopleura with a large spot destitute of pollen.

Abdomen black, semi-shining; the posterior margins of segments two to six widely pruinose; sides of first segment pruinose; posterior half of fifth segment pruinose with a median wedge running to anterior margin. Sixth segment pruinose except base. Posterior margin of seventh segment brownish pruinose; the pollen on five and six with a brownish tinge; dorsum of abdomen with sparse, short black pile; genitalia black with black pile; white bristles and pile on sides of first segment; venter black with pruinose posterior margins on segments.

Legs black with black spines and claws; pulvilli dark gray; pile of legs sparse, short and black, that beneath tips of hind tibiæ golden brown and reclinate. In certain lights this same type of pile can be seen beneath the fore tibiæ and metatarsi. Basal half of wings milk white, the veins yellow on basal third; apical portion of wing infuscated, with black veins; anterior cross-vein in middle of discal cell.

Female: Similar to above. Dorsum of thorax marked with brown; median geminate stripe brown; a long brown spot on either side of this, merging more or less anteriorly; pruinose posterior margin of segments interrupted in the middle; seventh segment with no pruinose marks, those

on sixth small; wings hyaline, the apical third faintly infuscated; the veins pale at wing-base but no striking white color in this section of the wing membrane.

Holotype (No. 487), male, and allotype (No. 488), female, in the Museum of the California Academy of Sciences, both taken at Dee, in the Hood River Valley, Oregon, August 1, 1917, by L. Childs.

Paratypes in the collections of L. Childs, Corvallis Agricultural College, and in the author's collection. A series of nine females and three males were taken by L. Childs at Dee, Oregon. Other specimens from Joseph, Ore.; Mt. Jefferson, July 15, 1907 (Bridwell); Sherwood, Ore., July 29.

This species might be made the type of a new genus. The mystax is composed of strong bristles, and in the typical *Metapogon* it is composed chiefly of fine pile. The head is hardly as wide as the typical form, and the face more widened below. The thorax is not highly arched, but more like that of *Lestomyia*.

22. *Cophura cyrtopogona* Cole, new species

(Plate 18, fig. 19)

Male: Length 6 mm. Wholly black; most of pile and spines white; frons thinly gray-pollinose and with sparse white pile; ocellar tubercle with white pile and several slender white bristles; face white-pollinose and with long white pile reaching to base of antennæ; a few black hairs on oral margin; face gently and evenly convex, the oral margin retreating; occiput white pollinose and pilose; very little pollen on vertex; pile under the head white; proboscis and palpi rather small; antennæ black, the basal segments with white hairs and spines below; third segment not much longer than basal ones, the style about as long as the second segment and terminating in a fine bristle (Fig. 19).

Thorax, pleura and coxæ silvery gray-pollinose; thoracic dorsum mostly covered with a brown design, resembling that on some species of *Cyrtopogon*; posterior portion of dorsum and thin median line semi-shining; pile brown in the middle, white in front and behind; pile of pleura white, including tuft in front of the yellow halteres; scutellum thinly white-pollinose above, with the apical margin shining and a marginal row of hair-like, white, upcurving bristles; some white pile on dorsum of scutellum.

Abdomen polished blue-black, almost bare above and sparsely pilose on sides, except the longer white pile on segments one and two; sides of first segment silvery pollinose; a silvery pollinose spot on posterior angles of segments two to six, very small on the sixth; genitalia polished black with sparse white pile.

Legs black, with white pile; underside of front two pair of tibiæ short golden pilose; spines of legs mixed white and yellow, those beneath fore tarsi deep yellow; fore tibiæ with a terminal claw-like spur; claws black except at extreme base; femora with long but sparse white pile below;

wings hyaline, in certain lights with strong prismatic colors on the membrane; anterior cross-vein near the middle of the discal cell, slightly proximad.

Female: Similar to male. Pollen on frons and face more brown in color, the pile and spines blackish and brown instead of white; spines and pile beneath basal joints of antennæ black; thorax almost all brown pollinose the brownish tinge reaching down on pleura; silvery pollinose spots on the posterior angles of the abdominal segments larger than in male. Segments six and seven wholly polished black.

Holotype (No. 489), male, and allotype (No. 490), female, in Museum of California Academy of Sciences, both collected at Dee, in the Hood River Valley, Oregon, August 1, 1917, by Leroy Childs.

This species is placed in *Cophura* because there is no other genus to which it can better be referred. It differs from any of the varied species that make up this group.

23. *Chrysoceria pollenia* Cole, new species

(Plate 17, fig. 18)

Male: Length 11.5 mm. Antennæ, palpi and proboscis black; head golden yellow pollinose, dense on frons and face; mystax golden, ocellar bristles yellow; hair and bristles on occiput yellowish white; hair on antennæ brown.

Thorax shining black, densely covered with golden yellow pollen; median dorsal black stripe reaching to scutellum, divided by a narrow yellow line (Fig. 18); pile and bristles of thorax yellow; two large black spots on either side of median stripe, divided at suture; a smaller black spot outside these, back of humeral callosities; scutellum densely golden pollinose; metanotum polished black below scutellum, golden at sides; halteres yellow.

Abdomen black in ground color, golden pollinose, with pale yellow hair; base of segments black; genitalia black, with yellow pile.

Femora shining black; tibiæ yellow with black tips; tarsal segments, except base, black; coxæ golden tomentose with yellow pile; most of the bristles and spines on the legs yellow, the heavier spines at tips of tarsal segments black; wings yellowish hyaline; costal cell and base of marginal yellow.

Female: Length 15 mm. Similar to the male. Basal black bands on abdominal segments broader; last two segments shining, the sixth black, the seventh brown; antennæ black; the golden hair on face reaching almost to antennæ.

Holotype (No. 491), male, collected at Hood River, Sept. 24, 1917 (F. R. Cole), and allotype (No. 492), female, from Mackenzie Ridge, 6,000 feet, August 1, 1909 (Bridwell), in Museum of the California Academy of Sciences.

This species is very near *C. pictitarsis* Bigot, but the femora are black and the median thoracic stripe is scarcely separated.

Dr. Back in his Monograph mentions a female from Wyoming in the Williston Collection which has black femora, and the last two abdominal segments black. "Were several more specimens taken like the Wyoming one, and showed no variation, I should be inclined to believe them a new species."

24. *Agathomyia lutea* Cole, new species

(Plate 18, fig. 20)

Female: Length about 3.75 mm. General body color dull yellow; head black, the frons and occiput thickly gray-pollinose; bristles black; first two antennal joints yellow, the third brown, with an apical, hair-like arista, about as long as rest of antenna; palpi and proboscis yellow; face black dusted with gray.

Thorax dull yellow, with black bristles which are quite conspicuous; last three bristles in dorsocentral row much longer than others; center row of bristles running to a little beyond middle; the row on each side curving out and down to the humeri. Just above the notopleural suture are five strong bristles; scutellum yellow; halteres yellow.

Abdomen yellow; pile of first two segments longer and yellowish; some black pile on dorsum of second segment; rest of pile on abdomen short and black; tip of abdomen brownish yellow.

Legs pale yellow, with short black hairs; wings hyaline and rather long (Fig. 20).

Holotype (No. 493), female, from Parkdale, Ore., Sept. 5, 1917 (F. R. Cole), in Museum of California Academy of Sciences.

This species will run to *fulva* Johns. in Johnson's table (in Psyche, Vol. XXIII, p. 27). We have a specimen of *fulva* which is bright orange in color, occiput more velvety black, thinly pruinose, and bristling of the thorax slightly different. This specimen is only 2.5 mm. in length.

25. *Chilosia ferruginea* Lovett, new species

Eyes elongate black pilose; face but slightly concave, produced, tubercle reduced; body and legs with long dense brown pile. Length 11 mm.

Male: Face black sub-shining with rather sparse almost microscopic reddish brown (brown-ochre) pile; eye-margins with mixed brown and black moderately elongate pile; brown pile extending down to the black, sub-opaque cheeks and around occiput to vertex; at base of eye a small triangular reddish brown spot; frontal triangle swollen, with median groove, sub-shining, black with elongate brown pile; vertical triangle opaque black, ocelli red, pile moderately sparse, elongate brown; antennal prom-

inence produced, face practically straight, considerably produced, tubercle small, obtuse, located about three-fifths of distance from base of antennæ to oral margin, in profile below base of eye. At base of antennæ below, at margin of eye and at base of antennal prominence are small triangular spots of greyish pollen; antennæ short, first two joints shining brownish black, third rounded, reddish brown, lighter at base and covered with sparse greyish pollen; arista black, practically bare, thickened for one-third its length; basal joint distinct.

Thorax and scutellum shining black with brassy reflections; covered throughout with elongate, moderately dense, brown pile, longer at margin of scutellum, on pleura mixed with black; entirely free of bristle-like hairs.

Abdomen blue-black with cobalt reflections, opaque black on disc; covered throughout with elongate pile similar to thorax.

Legs black, knees and proximal third of tibiæ brown or yellow, base of all femora with elongate brown pile, apical two-thirds of front, half of middle and tip of hind femora with elongate coarse black pile; under surface of hind femur with moderately dense, elongate spine-like black hairs; tibiæ and tarsi with golden pile; wings smoky throughout; veins dark, brown at base; squamæ smoky white with margin of dense golden pile; halteres with dark knobs.

Holotype (No. 494), male, in Museum of California Academy of Sciences, collected at Corvallis, Ore., April 14, 1917, by W. J. Chamberlin.

Twelve specimens of this species, collected from Hoquiam and Satsop, Wash., April 29 to May 20, 1914, by Burke, were observed in the National Museum.

This species is near *C. lasiophthalma*, but is markedly different. It more nearly approaches *C. grossa* but varies in the pile and legs. The elongate brown pile of the head and body and elongate black pile of the eyes are characteristic.

26. *Chilosia nigrovittata* Lovett, new species

Eyes moderately elongate, brown pilose; face but slightly concave, tubercle reduced; body covered with moderately long brown and yellow pile; across dorsum of thorax with well defined band of black pile. Length 10.5 mm.

Male: Face not produced, very slightly concave to the small obtuse tubercle, with a short shallow concavity before oral margin; cheeks shining black with sparse yellowish brown pile extending around occiput to vertex; frontal and vertical triangles black, swollen, with coarse black pile; frontal triangle with median groove and with fine yellow pile about margin; antennæ brownish black, third joint orbicular, greyish shading to dull reddish below; arista black almost to base, thickened on basal fifth; face shining black, bare; eye margins sparsely yellow pilose; greyish pollen below the antennal prominence connected briefly with similar triangular areas at eye margins.

Thorax and scutellum black, subshining; extreme front of humeral angle with spot of grey pollen; a triangle on dorsum of thorax in front and the

hind margin and scutellum with elongate yellow pile; across middle of dorsum, as a black band, and extending forward to the humeral angle the pile is moderately elongate, black, blending into the yellow by a margin of brown; post-alar callosities with black bristly pile.

Abdomen black, subopaque on disc of first three segments; fourth segment and margin of fifth subshining blue-black; pile throughout moderately long, brown; legs black, knees and proximal third of tibiae brown; pile black, mixed slightly with yellow on front and middle tibia; wings smoky throughout; veins black.

Holotype (No. 495), male, in Museum of the California Academy of Sciences, collected at Corvallis, April 22, 1917, by C. Neilson.

Two specimens from Hoquiam, Wash., May 1, 1904, Burke, collector, observed in National Museum collection.

27. *Chilosia pacifica* Lovett, new species

Eyes bare; arista moderately plumose; scutellum and thorax with bristles on margin; pile of dorsum, short, bristle-like, black throughout; third antennal joint sub-quadrate, corners rounded, a little longer than broad, bright reddish yellow; legs black. Length 7 to 7.5 mm.

Female: Shining blue-black; front same, punctate, coarsely black pilose; face shining, bare, with indistinct greyish pollen, deeply concave below the antennae; tubercle rounded, obtuse; below tubercle almost straight; cheeks shining black, pollinose at base of eye; first and second joints of antennae brownish black, second yellowish at apex; third slightly larger than medium, longer than wide, subquadrate, conspicuously reddish yellow, very indistinctly pollinose; arista at base of segment, black, moderately plumose.

Dorsum of thorax and scutellum blue-black, shining, with short bristle-like pile more abundant forward; margins of thorax and scutellum with black elongate bristles; pile of pleura black, bristle-like.

Abdomen shining blue-black throughout, broadly oval, widest at apex of second segment; first, second and third segments practically bare on disc; fourth segment and margin of third with sparse, moderately long whitish pile; triangular area on anterior margin of second with longer mixed white and black pile.

Legs black, the knees briefly brown, wings smoky throughout, veins black, stigma yellow. Posterior cross-vein approximately straight with outward stump at base.

Holotype (No. 496), female, in Museum of the California Academy of Sciences, from Lava Lake, Ore., July 25, 1915, A. L. Lovett, collector.

Near *cyanea* Hunter; varies in pile of thorax which is short, coarse, bristle-like, black, including scutellum.

Six specimens, all females, three from Mt. Jefferson, Ore., July, 1907, by Bridwell, one from Corvallis, Ore., May, 1917,

by Sweeney; two from Lava Lake, July, 1915, by Lovett. The specimen from Corvallis is decidedly more blue in color than the alpine forms, otherwise similar.

28. *Bachypalpus pigra* Lovett, new species

Length 10 mm. Black; face, front and antennæ black; legs black, white pilose; front and middle knees briefly brown; abdomen shining; second segment with opaque posterior cross-band.

Female: Face shining black, bare, briefly white pilose along eye margins; cheeks shining black with moderately elongate white pile below, extending around on margin to occiput; front black, briefly white pilose; shining at base of antennæ, opaque above; vertex subshining; pile white, moderately elongate; antennæ black; third joint brownish, as broad as long, rounded, briefly silvery pollinose; arista dark reddish brown, lighter at tip.

Thorax shining brassy black with two median, moderately broad, opaque greyish pollinose stripes, meeting behind to form a spot in front of the scutellum; a similar outer pair of stripes sub-interrupted at suture; pile of thorax light yellow, black on dorsum in middle; scutellum of same color as thorax, pile on margin elongate white.

Abdomen shining black; first and second segments with greenish reflections; first with median opaque black spot; second with opaque black band on posterior margin, convex in front and not reaching the lateral margins; succeeding segments shining black with blue reflections; pile of abdomen white or grey, sparse and short on disc, short and black on opaque band of second segment.

Legs black with white pile, knees briefly brown; hind femur distinctly thickened, tibia arcuate. Wings: Veins brownish, yellowish at base; stigma brown and a well defined brown cloud on all cross-veins. Halteres white at margin, brown at base.

Holotype (No. 497), female, in Museum of the California Academy of Sciences, collected at Mt. Jefferson, August, 15 (A. L. Lovett).

Near *rileyii*, but distinct in antennæ, pile, abdominal markings and legs.

29. *Xylota scutellarmata* Lovett, new species

Length 8 mm. Shining black; thorax with short golden pile; margin of scutellum with four elongate black bristles; abdomen opaque black, segments two and three with small yellow triangular spots; pile white on the lateral margins of first and second segment; on the yellow spots and small triangular areas and on anterior margin of fourth segment with elongate white pile; fourth segment shining black.

Female: Front and vertex shining black; moderately wide and but little narrowed above, with short sparse white pile, longer and yellowish at the vertex; a white pollinose band across the front extending down along the eyes to meet with similar pollen of face; face short, moderately concave, subshining, brownish, lighter about the oral margin, lightly whitish pollinose; cheeks dull black, sparsely grey pilose; antennæ brown; third segment dark brown at tip, reddish at base, moderately broad, rounding; arista basal, dark brown, reddish at base, twice as long as antennæ.

Thorax black with coppery reflections; scutellum blue-black with four conspicuous black bristles on the margin; thorax with usual whitish sericeous spots inside of humeri.

Abdomen: first segment dull shining brown, sparsely short white pilose on disc, elongate pilose on margin; second and third segments of same color, small sub-triangular yellow spots on side not reaching margin; fourth segment more shining, black with triangular areas of elongate whitish pile on sides.

Legs brown with white pile, hind femora dark, with double row of short strong spines below. The base of all and the tip of the middle and front tibiæ and the basal segments of tarsi of the front and middle legs light yellow; hind tibiæ moderately arcuate, dark brown, except the base, as are the hind tarsi and the distal segments of middle and front tarsi; wings hyaline, stigma light yellow.

Holotype (No. 498), female, in Museum of the California Academy of Sciences, collected at Hood River, Ore., June 6, 1917, by F. R. Cole.

Near *nemorum*; varies in bristles on margin of scutellum, etc.

30. *Xylota stigmatipennis* Lovett, new species

Length 7 mm. Face and front shining black; a very heavy silvery white pollinose cross-band below the antennæ, extending narrowly upward along margin of eyes two-thirds of way to vertex and downward along eye margins a short distance then out as a distinct line to oral margin; thorax and scutellum shining black with short light golden pile; abdomen blackish, opaque on the disc, with a pair of yellow quadrangular spots on the anterior margin of second segment.

Female: Front and vertex broad, shining black, short white pilose, but little narrowed at vertex; a median depressed line from lower ocelli to near base of antennæ; the crescentic pollinose spots on front eye-margin connect narrowly with a broad heavy silvery pollinose band below the antennæ; face and cheeks shining black; a pollinose line extending obliquely from oral margin to eye-margin, separating face and cheeks, and extending upward along eye-margin to connect with cross-band; sparsely white pilose along eye margin; antennal prominence produced; antennæ brown-black, short; third joint broadly rounded, a little longer than broad; arista black.

Thorax shining black with obscure coppery reflections; whitish sericeous spots on inside of humeri produced inward almost to median line; scutellum shining black with coarse shallow punctures.

Abdomen: first segment opaque greyish on the disc, narrowly yellow on lateral and posterior margins; second segment narrowly yellow on the anterior margin, the yellow expanding on the anterior lateral margins to form a large quadrangular spot, connecting with the lateral margin narrowly in front and with the yellow of first segment; remainder of second segment opaque brownish black, posterior margin with narrow line of white; succeeding segments shining brownish black with sparse light golden pile throughout.

Legs black, tibiae and tarsi dark brown, the middle tarsus of hind pairs of legs lighter brown, briefly white pilose; wings hyaline; a dark smoky indefinite area extending from the basal tip of the stigma downward to the discal cell; stigma light yellow; basal portion of wing veins yellow, apical portion brown.

Holotype (No. 499), female, in Museum of the California Academy of Sciences, collected at Hood River, Ore., June 4, 1917, by Frank R. Cole.

Characterized by smoky spots in wing and elongate quadrate yellow spot on second abdominal segment.

31. *Brachyopa gigas* Lovett, new species

(Plate 18, fig. 21)

Face, cheeks, and antennae uniformly yellow; arista moderately plumose; thorax with four brown lines, wings of a brownish tinge, without spots or markings. Length 9.5 mm.

Male: Face, front, cheeks and antennae light yellow, briefly white pilose; cheeks with hint of brown; antennae with hint of reddish; arista somewhat thickened and light yellow on basal fourth, remainder brown, plumose, pile short at tip; vertical triangle brown, ocelli reddish, occiput briefly short brown pilose.

Thorax and scutellum brown subshining covered with short, bristle-like, golden pile; dorsum of thorax with greyish pollen and four longitudinal brown lines, brown dashes above base of wings and narrow upper margin of meso-pleura dark brown.

Abdomen brown, shining, posterior margin of all segments with cross-band of darker brown connecting with similar lateral margin; disc of first segment, and a median line on second and third segments which may or may not reach the posterior margin dark brown. Pile of abdomen similar to that on thorax, somewhat less coarse.

Legs dark brown, apical tarsi of front and middle legs and all tarsi of hind legs blackish. Pile of legs as that of thorax. Posterior to attachment of front legs and anterior to attachment of hind legs the pectus is black.

Wings brown, veins dark brown, stigma yellow; fourth longitudinal bent sharply downward at apex of discal cell, the flexure straight, with a short spur and forming an obtuse angle with the straight marginal cross-vein (See fig. 21).

Holotype (No. 500), male, in Museum of the California Academy of Sciences, collected at Blue Mts., Washington, July 15, 1896.

Several specimens observed in collection of Washington State College (Cole).

Near *media*; distinguished by large size, plumose antennæ and lines on thorax.

32. *Syrphus bimaculata* Lovett, new species

(Plate 18, fig. 23)

Face yellow, with brown median stripe not reaching base of antennæ; cheeks black; eyes bare; thorax with golden pile; scutellum light yellow; abdomen black subshining; second segment on anterior third with moderately narrow, interrupted band which reaches the lateral margins; posterior margins of fourth and fifth segments yellow, this color not reaching lateral margin. Length 7 mm.

Female: Face shining yellow with black pile; a narrow brown median line from just below, but not reaching, the antennæ to oral margin; oral margin and cheeks dull brown, greyish pruinose below; pile on cheeks and occiput light golden; front and vertex black, shining above antennæ, a broad golden pollinose band across front and extending along eyes to base of antennæ; vertex opaque black; front and vertex with black pile. The prominence just at base of antennæ with a conspicuous honey yellow crescent; antennæ brown; first joint, second below, and third basally and along lower margin sparingly, light yellowish brown, elsewhere dark; arista basal, brown, lighter on basal third, dark brown terminally.

Thorax shining bronze-black with light golden pile; scutellum honey yellow, pile longer and lighter.

Abdomen subshining black; second segment opaque black with elongate narrow yellow spots, rather broadly interrupted, arcuate and reaching the lateral margins for their full width near the anterior lateral angle; segments three, four and five black, subshining; posterior margin of fourth and fifth, broadly yellow, but the yellow not extending to lateral margin; pile moderately elongate, golden, on first segment and on yellow portions of second, elsewhere short, black.

Legs: Front and middle pair yellow throughout, hind pair brown, under surface of femur light brown; wings hyaline; stigma brown; halteres honey yellow.

Holotype (No. 501), female, in Museum of the California Academy of Sciences, collected at Mt. Jefferson, Ore., July 15, 1907, by Bridwell.

Another female, Mary's Peak, Ore., June 6, 1915 (Lovett, collector).

This species is distinct from any *Syrphus* known to us in that it has but one band, or two spots, on the abdomen. It is similar in some ways to *S. bifasciata*, but appears distinct even from the many unusual varieties of this characteristic form.

Also in certain lights there is a hint of a broad uninterrupted fascia on the third and fourth segments. This offers the surmise that it might be a melanic form of some common species, as occurs in *L. pyrastris*. An attempt so to classify it was fruitless; also, were this the case, one might expect the pile over these obscured bands to remain light. It is throughout, however, a coarse short black pile warranting the assumption that the bands are actually obsolete.

33. *Syrphus pacifica* Lovett, new species

Length 7 to 8.5 mm. Eyes moderately white pilose; face greenish yellow with blackish pile; a broad median shining black stripe from oral margin to near base of antennæ; oral margin and cheeks shining black; front and vertex shining greenish black with elongate black pile; dorsum of thorax deep shining black with greenish reflections and moderately elongate black pile; scutellum translucent brown with black pile; abdomen shining black with three interrupted arcuate cross-bands not reaching the lateral margins; legs brown; basal two-thirds of femora and coxæ black; wings smoky; stigma light brown.

Male: Antennæ small, brownish; all three segments black above, brown below; third segment small, rounded; arista black, basal, bare; frontal triangle moderately swollen, shining greenish black with elongate black pile; face almost vertical from slightly raised antennal prominence to obtuse tubercle, not projecting; the median stripe moderately broad with tinge of brown; occiput below with golden pile, on upper two-thirds with coarse black pile.

Abdomen shining black with three interrupted greenish yellow cross-bands, one near middle of second segment, approximating in form an elongate triangle with a straight outer edge not reaching the lateral margin; on third and fourth segments the cross-bands are arcuate, convex in front, almost straight behind, their outer ends crescentic, the inner broadly separated and rounded; posterior margins of fourth and fifth segments greenish yellow, not reaching lateral margin; pile of abdomen coarse, moderately elongate, black, light golden on cross-bands.

Legs brown, basal half of front and middle and basal two-thirds of hind femora and all coxæ shining black; wings smoky brown, veins blackish, stigma brown.

Female: Similar to male. Front with broad pruinose cross-band, pile of face light yellow; pile on margin of cheeks and occiput light yellow to white; without tufts of black bristly pile on post-alar callosities; scutellum dark with deep brown reflections, pile except at margin color of that on thorax; abdominal markings similar, the yellow bands slightly narrower; pile shorter and more sparse than on male, elongate white on lateral margins of second segment; wings hyaline.

Holotype (No. 502), male, in Museum of the California Academy of Sciences, collected at Corvallis, Ore., May 17, by A. L. Lovett.

Five males, May to June, Corvallis, Ore., A. L. Lovett, collector. One male and one female, Hood River, May (Cole, collector).

This species is near *S. pauxillus* but face not projecting and cross-bands differ.

34. *Didea pacifica* Lovett, new species

Eyes bare, third longitudinal vein deeply sinuous, abdominal bands except first not reaching lateral margins; cheeks, legs and scutellum black. Length 10 mm.

Male: Face light yellow with silvery pile; tubercle brown; stripe extending broadly to oral margin and along upper third; cheeks green-black, slate-grey below eyes; front brownish with sparse moderately elongate black pile; two dark brown shining spots at base of antennæ connected with inverted V-shaped, slatey, sub-opaque stripe; ocelli red; pile short, black; orbits fringed with yellowish white pile. Antennæ: First two joints black; third deep brownish, elongate oval, obtusely pointed; arista brown.

Thorax and scutellum shining blue-black with gray pile, showing golden reflections in certain lights; meso, ptero and sternoplura blue black; margins brownish, with white pile.

Abdomen black with three greenish yellow cross-bands, the first consisting of two large spots on second segment moderately separated and reaching the lateral margins; second and third cross-bands broad, entire, separated from lateral margins by a narrow black border, front margin straight, touching anterior margin of segments; black posterior band dilated somewhat in middle; fifth and sixth segments shining black, fifth with hint of cross-band on anterior lateral corners.

Legs black; knees and distal tip of tibiæ brownish. Wings hyaline; stigma greyish; third vein strongly curved into first posterior cell.

Holotype (No. 503), male, in Museum of the California Academy of Sciences, collected at Parkdale, Ore., July 12, 1917, by F. R. Cole.

Varies from *D. fusiceps* in black cheeks, black scutellum, darker legs, wholly hyaline wings and in size.

35. *Pipiza oregona* Lovett, new species

(Plate 18, fig. 22)

Length 9 mm. Black throughout, with bluish reflections; antennæ black; legs black; thorax with fine silvery white moderately elongate pile.

Male: Eyes with elongate white pile, with yellow reflections in certain lights; vertex black with elongate white pile mixed with black, produced along margin of occiput; front shining, somewhat swollen; pile elongate, black on antennal prominence, light above; antennæ short, segments approximately of equal length, third rounded; arista stout, basal, about as long as antennæ; antennal prominence produced, face and front slope straight away from this point; face elongate, light pilose.

Thorax and scutellum with elongate silvery pile with yellowish reflections.

Abdomen where shining has bluish reflection; second segment with opaque band on anterior and posterior margin, produced in middle to meet narrowly, leaving shining portions as quadrangular areas with rounded corners; segment narrowly shining on posterior margin; third segment with opaque bands anteriorly and posteriorly, not reaching margin and but slightly produced in middle; fourth segment with opaque band near front margin not reaching lateral margins, otherwise shining; sparse white pile except on opaque portions where pile is black; legs black, white pilose; pile on tarsi with golden reflection; wings smoky; halteres with white knob.

Holotype (No. 504), male, in Museum of the California Academy of Sciences, collected at Hood River, Ore., May 8, 1917, by F. R. Cole.

Two male specimens taken, vary from 7.5–9 mm.

Near *californica*, differs in size, shape of antennæ, wing venation and color of legs.

36. *Platychirus frontosus* Lovett, new species

Head, thorax and scutellum shiny black with black hairs; legs black, front femur with large tuft of black elongate spine-like hairs on proximal third. Length 8 mm.

Male: Face broad, greenish black, shining, with hint of brownish pollen; frontal triangle same color without pollen, unusually broad and decidedly swollen; vertical triangle black, shining, considerably swollen; ocelli brown; face, front and vertex with moderately long black pile; on lower occiput pile whitish; antennæ black, third joint nearly twice as long as wide, dark brown, lighter basally below; arista black.

Thorax and scutellum green-black, shining; no pruinose spots on sternum or pleura, pile black.

Abdomen opaque black; first segment subshining, outer angles with bronze reflections; second, third, and fourth with pruinose bronze spots. On second segment the bronze spots on lateral margins extend from anterior margin back for distance of two-thirds of segment. On third and fourth segments the spots are deeper, shorter, on anterior third of segment, reach lateral margin but do not touch anterior margin of segment. Fifth segment as first. Pile black on opaque areas, white on bronze areas and along lateral margins.

Legs: Fore legs light brown, tibiæ yellow, darker at tip; front tibiæ gradually dilated, convex on outer angle below, gently concave on inner side; tarsi strongly dilated, gradually narrowed from base to tip; femur with three white hairs at extreme base, then a heavy brush of black pile, most conspicuous at base but extending over proximal third of segment; middle

and hind legs black; knees brown, middle tarsi brownish; hind metatarsi not dilated; pile on hind legs white; wings smoky throughout, stigma greyish brown.

Holotype (No. 505), male, in Museum of the California Academy of Sciences, collected at Corvallis, Ore., May 5, 1917, by F. H. Nichols.

Near *P. aratus* but differs in shape of face, in pile of thorax, in wings and legs.

37. *Criorhina aurea* Lovett, new species

Length 15 mm. Robust; pile elongate; face black; abdomen shining black, fourth segment entirely gray pruinose; pile of second and third abdominal segments elongate, orange; of fourth segment elongate, yellow; of fifth black; legs black, coarse brown and black pilose; tarsi lighter brown; wings dark brown, veins black and heavily shaded.

Male: Antennal process moderately projecting; face concave below, prominence only slightly projecting; heavily white pollinose including front; cheeks shining, usual elongate light yellow pile from antennal prominence out along eye margins to cheeks; cheeks below with elongate brown and black pile; vertical triangle shining black and including occiput with elongate heavy light yellow pile; similar pile at base of antennal prominence; ocelli red; antennæ dark brown, red on basal half of third segment; third segment comparatively small, not thinned except on margin, rounding, not produced on outer angle, much produced to an obtuse point on inner angle; arista at middle of outer angle, moderately elongate, black, lighter toward tip; rim of antennal prominence shining brown.

Thorax subshining, grey pollinose on anterior half, posterior half and scutellum shining black; pile elongate yellow; black on transverse band at base of wings, on scutellum more golden; pteropleura with coarse black pile.

Abdomen shining black; first segment opaque black on disc, subshining on posterior margin; second subshining on disc; fourth forms a characteristic transverse band of grey pollen across abdomen; pile elongate, golden, thinned on disc of first and second segments, yellow on fourth and black on fifth.

Legs black, the knees and tips of tibiæ dark brown, the tarsi very light straw brown; pile of all femora black; on basal third of front femur mixed with brown; on basal half of middle femur mixed with yellow and brown; hind femur below on apical third thickly set with short heavy spines; pile of tibiæ coarse, short, very dark brown; tarsi rounded, darker on distal segments; rather deeply incised and with tufts of short black conspicuous spines on marginal angles.

Wings with brown tinge, the veins conspicuously black, tinging the adjacent membrane to an unusual degree; halteres and squamæ brown black, the latter with a heavy fringe of elongate brown pile.

Female: Similar to male in appearance and coloring. More robust, the pollen of the face and front brown; more black pile on cheeks; pile on legs darker; tarsi darker; spines not so conspicuous; spines on hind femur less noticeable.

Holotype (No. 506), male, in Museum of the California Academy of Sciences.

Allotype, a female in collection of A. L. Melander, Pullman, Wash.

Paratypes, Moscow Mt., Idaho, June 1, 1907, A. L. Melander, collector.

Near *kincaidi* and *luna*, characterized by pollinose band on fourth segment of abdomen and dark legs with black pile.

38. *Criorhina luna* Lovett, new species

(Plate 18, fig. 24)

Length 17–19 mm. Pile elongate; antennæ brownish black; general ground color black; hind femur with spines below; all tarsi broadly flattened and deeply incised; wings smoky brown, veins dark.

Male: 19 mm. Antennal prominence produced; face concave below antennæ then straight to oral margin, considerably produced; face and front black, covered with dense golden brown pollen; cheeks shining black; above and occiput as face; at base of antennæ below, along eye margins, at oral margin and about occiput, elongate golden pilose; at base of antennæ above with elongate black pile; vertical triangle with mixed black and golden pile; first two joints of antennæ brownish black, second reddish at tip; third segment brown, reddish at base, broader than long, outer angles rounded, narrowed toward the base, the margin decidedly thinned, concave on outer side, convex on inner side; arista near outer angle, elongate, dark brown; margin of antennal prominence above shining reddish brown.

Thorax and scutellum sub-opaque greyish pollinose; a transverse shining black cross-band at base of wings; two median lines extending dorsally from front margin of thorax to shining cross-band; on the dorsum laterally are two sub-shining circular areas produced forward from the cross-band into the pollinose field; pile elongate yellow, longest on scutellum, black on shining cross-band.

Abdomen narrow, elongate; the fifth segment large and produced, adapted for sex organ; black shining, first two segments greyish sub-opaque; pile elongate yellow, reddish on disc, black on fifth segment.

Legs dark brown, the pile golden yellow; knees and tibiæ lighter brown, the tips of tibiæ and tarsi yellow; hind femur not particularly thickened, arcuate; sparsely elongate yellow pilose on proximal two-thirds; thickly beset with spines below and on distal third above; the tarsi flattened, broad, deeply incised and with tufts of heavy brown spines on the inner distal angles of the segments; tuft of coarse black pile at base of fore leg, similar but more luxuriant pile at base of hind legs; wings smoky brown, the veins dark brown; squamæ and halteres brown-black, the former with fringe of golden pile.

Female: Length 17 mm. Abdomen robust. In general similar to male, the front broad, and darker brown pollinose; pruinose triangular areas on second abdominal segment narrowly divided at center, reaching lateral margin; on fourth segment near base with lunule-shaped opaque grey

pruinose areas midway between lateral margin and median line and not reaching any margin; pile more luxuriant but similar to male, orange more conspicuous on disc; black on fifth segment mixed with brown, inconspicuous. Tarsi darker than male; veins of wings black.

Holotype (No. 507), male, and allotype (No. 508), female, in Museum of the California Academy of Sciences, ♂, collected at Mary's Peak, Ore., May 14, 1916, Lovett, collector; ♀ Alesia, Ore., April 15, 1916.

Two females and five males, April and May. Subalpine. A large showy orange and black form occurring about fallen decaying logs. It flies swiftly, and is a very early form.

Similar to *kincaidi* (fig. 26); distinguishing character is the legs, particularly the tarsi. See Fig. 24.

39. *Criorhina quadriboscis* Lovett, new species

(Plate 18, figs. 25, 25a, and pl. 19, fig. 25b)

Female: Length 12 mm. Face unusually produced, heavy, blunt, square at proboscis; lower eye margins but little more than one-half distance to tip; slightly concave below antennæ; tubercle reduced; concave from tubercle to margin; golden pollinose with elongate golden pile along eye margins and a tuft at oral margin; front and vertex dark brown with golden pollen and dark brown pile; a deep median suture about ocelli extending down to antennal prominence; cheeks shining black, bare, below and along occiput golden pruinose with light yellow pile; antennæ small, dark brown; first two segments equal; third broad, rounded, flattened, lighter at base. Arista dark brown.

Thorax black, golden pruinose, on anterior half with light pile, a shining black transverse band dorsally with black pile; post-alar callosities with elongate white pile; scutellum black with conspicuously elongate white pile.

Abdomen black, sub-opaque on first two segments; light yellow pilose, thin and short on disc; third segment shining black, orange pilose on disc, outer angles black pilose; fourth segment shining black, conspicuously elongate orange pilose; on anterior lateral angles, but not reaching the lateral margins, are two pruinose crescentic spots; the lateral margins with elongate whitish pile; fifth segment shining black, elongate black pilose.

Legs brown; femora dark, lighter proximally and apically, tibiæ similar, but lighter throughout; tarsi dark at tip. Pile on front and middle femur light at base, black at tip; on hind femur mostly coarse black with scattering lighter hairs, tibiæ and tarsi with short golden pile; wings appear twice length of abdomen, smoky, veins dark brown throughout; stigma yellow.

Holotype (No. 509), female, in Museum of the California Academy of Sciences, collected at Mt. Jefferson, Oregon, April 16, by Hartley.

Characterized by projecting blunt proboscis, and elongate, black, light and golden pile.

40. *Criorhina tricolor* Coq. (Lovett)

Mt. Jefferson, July-August, 1907 (Bridwell) and August 15 (Lovett); Hood River, June 17 (Cole). I find the description as given by Coquillett faulty and from a total of 25 specimens would redescribe as follows:

Female: Face shining black; base with hint of golden pollen; light yellow pile along eye margins; front and face form practically a straight line to obtuse tubercle, the antennal prominence rising rather abruptly, only moderately produced; from tip of tubercle to oral margin a straight retracted line, oral margin in line with front; cheeks, occiput, front and vertex with light golden yellow pile; across vertex just back of ocelli with transverse row of black pile; front and vertex shining black, with brassy reflections; antennæ brown; first segment shining, twice as long as second; second dull; third light brown, darker on outer angle, thinned, nearly as long as first and twice as broad as long, obtusely rounded on inner angle, prolonged on outer angle to form an obtuse point; arista dark brown located near point of projecting outer angle.

Thorax shining black, grey pruinose and yellow pilose anteriorly, black pilose posteriorly; on grey pruinose field are two median lines joining the shining posterior portion and two side spots projecting forward into pruinose field but not reaching anterior margin; often these side spots are circular and surrounded by the pruinose field; scutellum black with brassy reflections, pile elongate, light yellow.

Abdomen: First segment black with brassy reflections and rendered sub-opaque by grey pollen; second segment similar on disc; subshining on lateral angles, pile here elongate light yellow; hind margin of second and succeeding segments shining black; pile moderately elongate and extremely variable in color; generally bright brick-red on disc of third, black laterally, fourth segment with light yellow pile.

Legs black, knees and middle tibiæ light brown, front and hind tibiæ and all tarsi dark brown; middle and hind coxæ with heavy tuft of black bristly hairs; pile on front femur light yellow, on middle femur mixed with black, on hind femur all black; tibiæ and tarsi with short golden pile.

Wings smoky; a distinct cloud at base of stigma extending to spurious vein; veins dark brown, lighter on proximal third; squamæ grey, margin black, with black bristly hairs; halteres dark brown.

Male: Face opaque black, densely covered with silvery pollen, more deeply convex below antennæ; front and vertex shining, with dark brown and black pile. Abdomen: First segment and second on proximal two-thirds sub-opaque black with brassy reflections, the grey pollen so dense as to give appearance of yellow; pile on second segment elongate yellow; distal third of second segment and succeeding segments shining black; this portion of second and all of third with moderately short coarse black pile; terminal segments golden pilose. Tufts of pile at base of coxæ light yellow. Otherwise as female.

There is considerable variation in the color of the pile of the abdomen and to a lesser extent in the density of the pollen on the proximal segments, but the general characters are very specific.

41. *Aciura maculata* Cole, new species

(Plate 19, fig. 27)

Male: Frons, face and antennæ yellow, the frons very broad with short whitish bristles; vertical and fronto-orbital bristles longer; head white pollinose; occiput gray with short white bristles; third joint of antennæ rounded at tip; arista brown.

Thorax, pleura and scutellum cinereous; mesonotum with four long bristles; whole dorsum of thorax thickly covered with short, thick white bristles; three long black bristles on the shoulders; two long bristles on margin of scutellum; pleura with short whitish bristles; halteres blackish.

Abdomen shining and mostly blackish, some reddish brown on dorsum of second, third and fourth segments.

Femora mostly black, cinereous pollinose; the tips and part underneath tibiæ and tarsi brownish yellow; tips of tarsi blackish; wings dark brown and marked with hyaline spots (Fig. 27); anal cell paler brown. The oblique hyaline band across end of wing is a good specific character.

Two specimens from Jackson Co., collected May 28, 1916.

Holotype (No. 510), male, in Museum of the California Academy of Sciences.

This species is very near *ferruginea* Doane in wing pattern but differs in several structural characters and has an apical hyaline cross-band on the wing.

Larvæ in fruit of service berry (*Amelanchier* sp.) and bred out at Medford, Ore.

42. *Tritoxa pollinosa* Cole, new species

(Plate 19, fig. 28)

Female: Not as slender in form as the typical species. Body of general brown color. The thorax comparatively long. Wings with the characteristic three hyaline cross-bands. Length 6 mm.

Median stripe of frons dull yellow; the reddish brown stripe on each side, bordering the eyes, is almost obscured by white pollen and is about half as wide as the median section; short black bristles, denser on sides of frons; ocellars short and slightly proclinate as are small scattered bristles; the vertical and fronto-orbitals slightly reclinate; face yellowish, white in certain lights, with a reddish mark in center from oral margin half-way up the face and down on to yellowish clypeus; palpi yellow with black hairs; antennæ reddish, the third joint blackish above and more than twice as long as first two joints; arista black and finely pubescent; middle of cheeks with a brown spot under the eye which reaches to oral margin (Fig. 28); occiput yellowish brown, white pollinose below, especially on sides.

Thorax and pleura reddish brown; dorsum with golden pollen; two widely separated gray pollinose stripes running length of dorsum; præscutellar callosities and region around them bare of pollen and reddish; dorsum with many short black hair-like bristles which do not reach pleural suture, however; one humeral bristle; two strong bristles in front of scutellum arising from brown spots; a smaller bristle on each side and in front of these two strong bristles on the dorso-central line; two strong

noto-pleurals; upper edge of mesopleura blackish, in most part golden pollinose and with a few hairs; one strong spine on upper posterior corner of mesopleura; halteres yellow; scutellum reddish, shining, the apical half black; four scutellar bristles.

Abdomen brown, the most of first segment shining reddish brown; ovipositor wide, flat, amber colored; the rest of the abdomen brownish pollinose, gray toward base of segments; venter varied, brownish and blackish; dorsum of abdomen with short, black, thick set pile.

Legs brownish yellow, the tarsi darker. The wings are brown with oblique hyaline stripes (Fig. 28a); the outer stripe running from end of first vein to wing margin in center of second posterior cell; whole anal angle of wing hyaline. Longitudinal veins and cross-veins sinuous.

Holotype (No. 511), female, in the Museum of the California Academy of Sciences, collected at Warm Springs Valley, Ore., July 7, 1906. Collector unknown. From material in the Oregon Agricultural College.

This species is not typical in the form of the abdomen or general appearance. The head is shaped as in *T. flexa* and *T. cuneata*. The wing markings are quite different from the described species. Dr. Aldrich corroborated my determination of this species.

43. *Aricia bicolorata* Malloch, new species

Female: Yellow, slightly shining; head brownish fuscous; second antennal joint yellowish testaceous; palpi and third antennal joint black; abdomen and tarsi fuscous; wings clear, veins yellow basally; cross-veins very slightly browned; halteres yellow.

Eyes bare, facets of almost uniform size; frons at vertex a little over one-third of the head-width; orbits each with five or six bristles and a few weak hairs; antennæ nearly as long as face; arista with the longest hairs nearly as long as width of third antennal joint; palpi slender; cheek about one-fourth as high as eye, with a series of strong marginal bristles and some short, weak hairs above them; presutural acrostichals four-rowed short and weak; postsutural dorso-centrals three; prealar short; sternopleurals 1:2; hypopleura bare; third and fourth tergites with strong discal and marginal bristles; fore tibia with a median posterior bristle; mid tibia with three or four posterior bristles; hind tibia with two antero-ventral and two antero-dorsal bristles; fore tarsus slender, longer than fore tibia; costal thorn long; outer cross-vein slightly curved; veins three and four divergent at apices.

Length, 6–6.5 mm.

Type, Hood River, Ore., June 21, 1917 (F. R. Cole). Paratype, Washington State (Kincaid).

Paratype in collection of Illinois State Natural History Survey.

This species is readily distinguished from its allies by the colors of the body.

44. *Aricia oregonensis* Malloch, new species

Male: Black, slightly shining, densely gray pruinescent. Head black, frons, orbits, face, and cheeks with silvery pruinescence, second antennal joint reddish at apex, palpi black; mesonotum very indistinctly quadrivittate; basal dorsal abdominal segment (second) with a pair of black spots, segments two and three each with a pair of black rectangular spots which extend from base to apex of segments. Legs black, apices of fore femora, apical third of mid-femora, most of hind femora and all tibiae rufous-yellow. Wings clear; cross-veins very slightly infuscated; calyptra white; halteres yellow.

Eyes bare, separated at narrowest part of frons by about as great a distance as width across posterior ocelli; orbits bristled more than midway to anterior ocellus; interfrontalia distinct; parafacial in profile as wide as third antennal joint; antennae not as long as face, third joint twice as long as second; arista with rather dense short hairs, the longest barely longer than basal diameter of arista; cheek about twice as high as width of parafacial; face slightly concave above vibrissa; thorax without strong presutural acrostichals; three pairs of postsutural dorsocentrals present; prealar bristle minute; sternopleurals 1:2, with a weak bristle below and behind the anterior one; hypopleura bare. Abdomen elongate-ovate, third and fourth dorsal segments with strong discal and posterior marginal bristles; fifth sternite with dense short stiff hairs on its entire surface, the posterior margin with a broad shallow excision; fore tibia without median bristles; mid tibia with from two to four posterior bristles; hind femur with about eight long strong bristles on apical half or apical third of postero-ventral surface; hind tibia with one or two antero-dorsal bristles, the antero-ventral, ventral, and postero-ventral surfaces with rather dense erect hairs of moderate length. Costal thorn short; veins three and four parallel apically; outer cross-vein bent in middle.

Length, 7 mm.

Type, Grant Co., Ore., one male.

45. *Cænusia oregonensis* Malloch, new species

Male: Black, slightly shining, covered with dense pale gray pruinescence. Head black, interfrontalia darker than the densely gray pruinescent orbits; antennae black, third joint entirely pale yellow; arista black; palpi pale yellow; proboscis blackish brown; dorsum of thorax not vittate, very noticeably shining and rather thinly pruinescent (possibly abraded). Abdomen with a conspicuous pair of large brownish black spots on segments two, three, and four, the basal (first distinct) segment without spots; fifth sternite gray. Legs pale yellowish testaceous, mid and hind coxae, and all tarsi infuscated; wings clear, veins black; calyptra white; halteres yellow.

Frons one-third as wide as head; orbits narrow, each with three long and one short bristle; ocellar bristles distinctly longer than upper orbitals and very much longer than postvertical pair; antennae extending over two-thirds of the distance to mouth-margin, third joint not over twice as long as second, rounded at apex; arista almost bare, slightly swollen for a short distance at base; parafacial in profile narrower than third antennal joint; cheek about one-sixth as high as eye, with about three long marginal bristles; vibrissa long and strong, a short setula above it. Dorsocentral bristles long and strong; presutural acrostichals irregularly two-rowed; lower spiracular bristle distinct, directed ventrad; abdomen normal in form, the tergites subequal, fifth but little exposed when viewed from above;

hypopygium small; fifth sternite short, the processes short, and apically rounded; legs elongate, slender, all tarsi longer than their tibiae; fore and mid tibia each with one weak posterior median bristle; hind femur with three or four long widely-placed antero-ventral bristles, and a long one at middle on postero-ventral surface; hind tibia with a short antero-ventral bristle, and a much longer antero-dorsal one, the preapical dorsal bristle at one-fifth from apex of tibia. Last section of fourth vein twice as long as preceding section, inner cross-vein just beyond apex of first. Length, 2-5 mm.

Type. Corvallis, Ore., May 2, 1915 (A. L. Lovett). Ore. Exper. Sta., Accession No. 1796.

46. *Chironomus colei* Malloch, new species

Male: Yellowish testaceous, subopaque; antennal plumes dark at apex and base of flagellum; thorax with three reddish vittae; postnotum brown. Abdomen with dorsum of segments five and six and most of hypopygium black; apices of femora and bases of tibiae narrowly fuscous, the mid pair inconspicuously so; wings whitish, with a small brown dot at bases of veins, a fuscous median fascia which does not extend to margins, and a small fuscous patch at apices.

Fore tarsi without long hairs, basal joint about 1.25 as long as fore tibia and 1.75 as long as second joint; mid and hind legs with long hairs; costa extending almost to apex of wing.

Length, 5 mm.

Type and paratype, Forest Grove, Ore., June 3, 1918, at light (F. R. Cole).

This species closely resembles *taniapennis* Coq., *nephopterus* Mitch., and *pulchripennis* Coq., but may be readily separated from any of these species by the very much narrower wing fasciae and the much less conspicuously blackened legs.